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NASA reaches SLI milestone; funding for X-33/X-34 halted

NASA has selected a number of companies to enter into competitive negotiations for the Space Launch Initiative (SLI). As defined in the President's budget blueprint for the Agency, SLI provides commercial industry with the opportunity to meet NASA's future launch needs, including human access to space, with new launch vehicles that promise to dramatically reduce cost and improve safety and reliability.

The primary focus of the initiative is on technology development of concepts to launch payloads for NASA, commercial and military missions, and the ability to fly crews to and from the International Space Station (ISS). Satellite delivery and future space station support are the primary requirements for the new system and would include elements like crew transfer vehicles, reusable launch vehicles and orbital transfer systems.

NASA also announced March 2 that it will not add SLI funds to the X-33 or X-34 programs. As a result, the current X-33 program will come to completion when the cooperative agreement between NASA and Lockheed Martin expires March 31, unless Lockheed Martin chooses to support the program with its own funds. NASA is in the process of ending its X-34 contract with Orbital Sciences Corp. of Dulles, Va.

Continuation of both programs had depended upon the successful competion for SLI funding under a NASA Research Announcement for a $900 million contract award over the next two-and-a-half years. Contracts could be awarded as early as April, but none of those negotiations will include X-33 or X-34. NASA determined that the expected benefits from flight testing these X-vehicles did not warrant the magnitude of government investment required and that SLI funds should be applied to higher priority needs.

See SLI, Page 7

Estess named acting director at Johnson; Craig to serve Stennis as acting director

NASA Administrator Daniel S. Goldin has appointed Mississippi native Roy Estess, director of NASA's Stennis Space Center, acting director of Johnson Space Center (JSC) in Houston, Texas.

JSC Director George Abbey has been appointed to a position at NASA Headquarters to serve as Administrator Goldin's Senior Assistant for International Issues.

Mark Craig

Mark Craig, who has served as Deputy Director of Stennis Space Center since 1995, was appointed to serve as acting director of Stennis.

"I look forward to the many challenges ahead of us," Craig said. "As we continue striving to satisfy our customers and to meet our significant responsibilities as NASA's lead center for propulsion testing and for Earth science applications, we need to keep our eyes focused on the future. Let us all remember the path on which Roy Estess has put us and give him our full support in his absence."

A graduate of Purdue University with a degree in astronautical engineering, Craig pursued engineering postgraduate study at Rice University and completed MIT's Program for Senior Executives.

Craig has authored over 25 technical and space policy publications and has been the recipient of the NASA Outstanding Leadership Medal, the NASA Exceptional Service Medal (twice), the President's Meritorious Senior Executive Award (twice) and the

See APPOINTMENTS, Page 8

In one of his last actions as Director of Stennis Space Center before being named Acting Director of Johnson Space Center in Houston, NASA's Roy Estess, left, shows U.S. Representative David Vitter (R-La.) around the propulsion test complex at Stennis during a tour on Feb. 23. Vitter represents Louisiana's First Congressional District and was recently assigned to the House Appropriations Committee. During his visit, Vitter also received briefings from the Naval Meteorology and Oceanography Command, the Louisiana Technology Transfer Office and several Louisiana-based companies doing business at the center, and on the Space-Based Laser Program.

Director's Dialogue

from Acting Director
Mark Craig

ISO 9000 Is Changing, And So Are We

ISO 9000, the international standard of "say it, do it, prove it" which certifies our work integrity to current and future customers is changing. Why change a good thing? Well, change is worthwhile, if it results in significant improvement with a reasonable investment. That is the philosophy behind a recently released revision to the ISO 9000 Standard called ISO 9000:2000. With this revision, we will be making adjustments to our Quality Management System. Some of the changes will reflect the revision to the standard. Other enhancements have been in the mill for sometime, as we continually look for ways to improve our business processes. Many of you have contributed to these enhancements through your submittals to the Bright Ideas program and through participation in our internal audits.

ISO 9000:2000 is based on the principles of customer-focused organization, leadership, process approach, system approach to management, continual improvement, factual approach to decision-making and mutually beneficial supplier relationships. It categorizes an organization's activities into five sections (as opposed to the former 20 elements):

- **Section 4 Quality Management System** — requirements of the quality management system.
- **Section 5 Management Responsibility** — management responsibilities, including customer focus, planning and internal communication.
- **Section 6 Resource Management** — how the organization manages its resources, including training and infrastructure.
- **Section 7 Product Realization** — requirements for products and services, including contract review, purchasing, design and calibration.
- **Section 8 Measurement, Analysis and Improvement** — requirements for measurement activities, including customer satisfaction measures, data analysis and continual improvement.

It should be no surprise that the two areas 9000:2000 emphasizes are already a part of our Stennis culture: customer focus and continuous improvement. We each know how important these are to our existence. Our tremendous growth over the past few years is a direct reflection of our customer-focused approach to doing business. This applies to not only propulsion test and Earth science applications but also to the rapidly growing "federal city" we have today.

We have three years from the release of the 9000:2000 revision (December 15, 2000) to comply with the standard. I have asked our Management Representative for Quality, Mike Wethington, to lead us to full compliance in time for our certification renewal in February 2002. While there is much to be done, with your help we will meet that ambitious and very important objective.

Mark K. Craig

NEWSCLIPS

Space mapping mission catches Antarctica in motion — A two-part mapping campaign of Antarctica between the Jet Propulsion Laboratory, Pasadena, Calif., and the Canadian Space Agency may help answer questions about this mysterious place at the end of the world, including whether the ice sheet is advancing or retreating. The 1997 mission provided high-resolution radar satellite maps of the continent. The second phase was completed last November. Using results from the 1997 mission as a benchmark, scientists now have a way to see how the continent has changed. Images are available at *www.jpl.nasa.gov/pictures/antarctica*.

Asteroid or comet triggered largest mass extinction in Earth's history – New findings from a study funded by NASA and the National Science Foundation provide evidence that Earth's most severe mass extinction was triggered by a collision with a comet or asteroid. Scientists found the collision wasn't directly responsible for the extinction but rather triggered a series of events, such as massive volcanism and changes in ocean oxygen, sea level, and climate that in turn led to species extinction on a wholesale level. Results from the study were published in the February Journal of Science.

Monitoring Nature's Tiniest Space Junk – Our planet is surrounded by a swarm of alien invaders. The interlopers are simply meteoroids, ever-present specks of dust shed by comets and asteroids. NASA scientists at Marshall Space Flight Center, Huntsville, Ala., are using an experimental radar to monitor cosmic junk that can pose a hazard to satellites. NASA scientists have built an experimental forward-scatter radar to monitor near-Earth meteoroid activity around the clock. You can listen to the meteor radar in action by following *www.spaceweather.com/glossary/nasameteorradar.html*.

International Space Station Status Report

Leonardo is lifted from its stand to the weight and balance scale at Kennedy Space Center.

After more than four months in orbit, Expedition One made way for the second expedition to the International Space Station during the flight of the Space Shuttle Discovery.

The first-ever crew exchange aboard the station was the focus of the March 8 Space Shuttle mission. Discovery carried the Expedition Two crew — Russian Commander Yury Usachev and American Flight En-gineers Jim Voss and Susan Helms — to the orbiting science outpost.

At the end of its 12-day flight, Discovery will bring Expedition One crew members — American Commander Bill Shepherd and Russian cosmonauts Yuri Gidzenko and Sergei Krikalev — home after a pioneering four-month mission that prepared the space station for scientific research.

Discovery's flight also featured the debut of the NASA-owned Leonardo Multi-Purpose Logistics Module, built by the Italian Space Agency. Leonardo is the first of three pressurized modules that will serve as the International Space Station's "moving vans," carrying racks filled with equipment, experiments and supplies to and from the station aboard the shuttle.

Discovery lifts off on Mission STS-102 to first-ever crew exchange on space station

Shuttle Discovery blasted off from the Kennedy Space Center March 8 to deliver a new resident crew to the International Space Station (ISS) as the third shuttle mission in less than four months began in flawless fashion.

Commander Jim Wetherbee, Pilot Jim Kelly and Mission Specialists Andy Thomas, Paul Richards, Yury Usachev, Jim Voss and Susan Helms of STS-102 rocketed away from Launch Pad 39-B at 5:42 a.m. (CST) as they began their pursuit of the international complex. Usachev, Voss and Helms are the second crew members of the ISS mission.

The crews exchanged places on the station in a three-step fashion, beginning with Usachev and Gidzenko swapping roles as station and shuttle crew members within hours after docking.

The Space Shuttle Discovery is safely launched in pursuit of the International Space Station on March 8.

Leonardo, the first of three logistics modules developed and built by the Italian Space Agency, was affixed to a berthing port on Unity on March 12.

Leonardo carries more than five tons of equipment and experiments that will be unloaded before it is again detached from the station and stowed aboard Discovery to return to Earth.

Ames sends its first hardware to station

NASA's Ames Research Center, Moffett Field, Calif., made local history when it sent its first space hardware to the International Space Station (ISS) March 8 on the Space Shuttle Discovery.

The Passive Dosimeter System (PDS) will serve as a flexible and easy-to-use radiation monitor that will be available for use by researchers. It also will serve as a useful complement to existing dosimetry — the measurement of radiation and x-ray doses — used for routine ISS operations.

"Monitoring radiation exposure is important both to crew health and future scientific research on the ISS," said Robert Jackson, PDS payload manager at Ames. "These dosimeters can stay on the station indefinitely, and they will be available to scientists in a variety of fields."

Understanding the radiation environment on the ISS will help scientists explain experimental results that otherwise might be unaccounted for. The radiation measurements can help scientists determine whether a given effect is due to microgravity, radiation or something else.

The PDSs are part of NASA's laboratory support equipment and are available to all ISS partners' life science investigators.

Images of the PDS are available at *http://amesnews.arc.nasa.gov/releaes/2001/01images/thermolum/thermolum. html*.

Booming Business

Meeting Stennis' demand for propellants requires databases, multiple contracts and triple the trailers

The boom in business at NASA's Stennis Space Center can best be measured by the trailer load. The 716 trailers delivering propellants — liquid Hydrogen, liquid Oxygen, liquid Nitrogen and Helium — to Stennis in the month of January alone was an all-time high.

"Increases have been steady over the past five years," NASA's Boyce Mix, manager of the Propulsion Test Directorate at Stennis, said. "However, never before, in the history of our test program have our demands for propellants been as high as they were in January."

Mix said the increases in the demand for propellants — particularly liquid nitrogen and helium — were directly linked to the overall increases in project loads and higher demand from commercial customers.

According to Lockheed Martin's Propellant Coordinator Gloria Jordan, the previous monthly high was in April 1997 when the Space Shuttle Main Engine program recorded 18 consecutive tests. While there was a greater quantity of liquid Hydrogen delivered that month than in January of this year, the overall total deliveries far exceeded the April 1997 total trailers.

The increases in demand have necessitated changes not only on site, but also with vendors. A detailed database was created that matches delivery invoices, tracks flow meter readings from each stand, maintains inventory and verifies usage against cost quicker and with more accuracy than ever before.

"Because of Stennis' increased demands

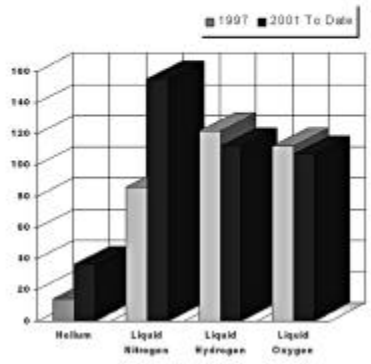
See PROPELLANTS, Page 6

Deliveries of propellants are offloaded at the Cryogenics Operation Facility at Stennis. From left, Lockheed Martin's Layne Bourgeois, Jody Knight, Gloria Jordan and Louis Carrier monitor activity from the control room.

"Increases in the demand for propellants can be directly linked to the overall increases in project loads and higher demand from commercial customers..."

Boyce Mix
Manager, Propulsion Test Directorate

Propellant Delivery Comparison
FY 1997 - FY 2001



Patent Application Award

NASA's Mark Craig, Stennis Space Center acting director, left, presents Mississippi Space Services' Haynes Haselmaier with a NASA Patent Application Award in recognition of his application for a patent on an innovative new tool for installing engine seals. The seal ring installation tool that Haselmaier invented is a simple plier attachment that allows seal rings to be inserted between piping flange faces. The tool requires minimum clearance and allows little opportunity for contamination of the seal ring and minimal risk of injury to personnel assembling the connection. The invention provides a simple, clean and safe way to install seals.

NASA's Harold Taulbee reflects on career accomplishments

Harold Taulbee

Stennis Employee Profile

Harold Taulbee, contracting officer for NASA, enjoys the open road. Whether on his new Honda motorcycle or in his camper, a trip on the open road provides relaxation while he is away from work.

At Stennis, Taulbee is the team lead for the contract specialists in the NASA procurement office and has overseen landmark contracts for Stennis Space Center since his arrival in 1986. "We built the Component Test Facility," Taulbee said. "We also saw a number of facility upgrades to accommodate new engine testing."

One of his greatest accomplishments was playing a key role in landing the Rocketdyne contract for Stennis, which contributed to Stennis' role as NASA's center of excellence in rocket engine testing.

A native of Mobile, Ala., Taulbee received his degree in industrial engineering from Auburn University and worked with the U.S. Air Force in Mobile, Ala., and the U.S. Corps of Engineers in Vicksburg before coming to Stennis.

His wife, Mary, is a real estate agent with Coldwell Banker Real Estate in Pass Christian.

His two daughters are grown — with his youngest, Ashley, settled in Jackson and his oldest, Lisa Evans, in Long Beach. Taulbee and his wife also make their home in Long Beach. "We love the Coast," he said.

A major source of pride for Taulbee is his six-month-old grandson, Zachary Thomas Evans, who arrived this July.

"I've spent a lot of time at Toys R Us since July," Taulbee said with a laugh. His wife sits with Zachary for several hours throughout the week while daughter, Lisa, operates her own dance studio in Long Beach. Taulbee has his own activities planned with his grandson, including swimming lessons in their pool.

When he isn't motorcycling, camping or playing with Zachary, Taulbee also enjoys a good round of golf and was a member of the Stennis Golf League.

This month Taulbee retires from NASA and will begin pursuing his hobbies and his grandson full time. "It took a long time to make the decision [to retire]," he said. "But it was a good decision."

He and Mary will follow the open road Taulbee loves so much once she retires later this year.

"We want to take trips around the country," he said. Some of the destinations he already has in mind are the Smoky Mountains, Key West, Fla., and the open expanses of the American West.

Five Stennis Space Center employees have been honored with NASA's Space Flight Awareness Award. The award program was established to prevent human error by instilling in civil service and contractor employees an awareness of personal responsibility for shuttle missions. Award recipients traveled to view the March 8 STS-102 launch of the Space Shuttle Discovery. Recipients include, from left, NASA's Vince Andres, Lockheed Martin's Pamela Wolfe, Mississippi Space Services' James Freeman, and The Boeing Co., Rocketdyne's Edward Peterson and Michael Burge.

MSCI unveils new CD-ROM created for Port Authority

The Mississippi Space Commerce Initiative (MSCI) at Stennis recently demonstrated a multilingual interactive CD-ROM to promote the deep water port for the Mississippi Port Authority at Gulfport. The CD-ROM was developed under a research contract to the University of Mississippi (UM) in conjunction with Mississippi State University (MSU).

The CD-ROM features various remote sensing images, port database information, economic impact data and virtual reality renderings of the port to showcase current and potential market uses of the Gulfport facility. Additionally, the CD-ROM shows current facility fly-throughs and visualization of the plans for a 60-acre expansion. Plans to expand the CD-ROM include adding actual use of berths and loading facilities, as well as animated docking procedures for each berth. The CD-ROM is produced in English, Spanish, and Korean and is used as a public relations tool for the authority.

"This project combines the best of all worlds — it is a living laboratory for our students, and it is a chance for Mississippi students and faculty, using very sophisticat-

See DEMO, Page 8

Olga Dominguez, director of the Environmental Management Division at NASA Headquarters, center, recently presented the Environmental Protection Agency's Energy Star Label for Buildings — the Mark of Excellence in Energy Performance — to Stennis Space Center. Stennis, along with Kennedy Space Center, was nominated for having energy-efficient buildings that lower energy demand, reduce air-pollution and provide quality indoor environments. Building 1020, the Naval Meteorology and Oceanography administration facility, was selected to receive the prestigious award. Receiving the award for Stennis are NASA's Environmental Officer Ron Magee, left, and Larry Ellis, right, director of the Center Operations and Support Directorate.

Volunteers encouraged to participate in 2001 Special Olympics

Stennis Space Center will sponsor the Area III Special Olympics on Saturday, March 24. Almost 250 athletes from Hancock, Harrison, Pearl River and Stone counties will participate in the annual competition. Top performers in the day's activities may be eligible for the U.S. regional or even the World Games. Much of the success of the Stennis event is found each year in the dedicated support from the more than 350 sponsors and volunteers who donate their time in support of the event. Top photo: Sandra Wescovich, standing, works with Ann Sharp, seated, and Don Sheldon to stage door prizes at a pre-game picnic/fund raiser held on March 7 to encourage Stennis employees and staff to volunteer for the games. Bottom photo, from left, Rodney Riley is recruited by Jane Johnson, Becky Rotundo, Mary Jones and Susan Dupuis. To volunteer, contact Becky Rotundo at Ext. 5328 or becky.rotundo@nrlssc.navy.mil.

PROPELLANTS . . .

(Continued from Page 4)

"Because of Stennis' increased demands for propellants, multiple contract awards are in place for sources of Hydrogen, liquid oxygen and helium, with vendors such as Praxair, Inc., Air Products, Inc., and B.O.C. Gases," said Mike Cockrell, NASA's propellants manager. Three years ago, no one could have foreseen the massive growth in testing and propellants usage that we are experiencing now."

There appears to be no real slow down on the horizon, even with the recent loss of the X-33 and X-34 programs, Mix said. Boeing's RS-68 assembly and test program holds a 20-year lease in the Mississippi Army Ammunition Plant Industrial Complex at Stennis. RS-68, the world's largest liquid-Hydrogen, liquid-Oxygen engine and its Common Booster Core — both tested on the B-1 test stand — are, at present, the center's largest consumers of Helium. Space Shuttle Main Engine tests — with constant developing design improvements and a schedule averaging six flights a year — will continue to be an aggressive consumer of both propellants and Nitrogen which is used to dry engines following testing. New programs, such as the Rocket Based Combined Cycle scheduled to begin testing in October, will continue to fuel the boom in this unprecedented growth in the propulsion-testing program at Stennis.

Dr. Kathryn Clark, space station chief scientist, Office of Space Flight at NASA Headquarters, recently visited Stennis for an overview of the Office of Education programs. While visiting Stennis, Clark attended presentations including the National Workforce Development Initiative and the Pipelines Initiative. Based on the presentations she saw, Clark is now working to make programs offered by Stennis available on a national level. From left, InDyne's Deborah Jackson, manager of education services at Stennis; Dr. Clark; and NASA's Dr. David Powe, manager of the Stennis Office of Education.

SLI . . .

(Continued from Page 1)

More than 300 personnel from throughout NASA participated in the SLI proposal evaluation process.

"This has been a very tough decision, but we think it is the right business decision," Art Stephenson, Director of NASA's Marshall Space Flight Center, Huntsville, Ala., said. Marshall manages the SLI, X-33 and X-34 programs for NASA.

"We have gained a tremendous amount of knowledge from these X-programs, but one of the things we have learned is that our technology has not yet advanced to the point that we can successfully develop a new reusable launch vehicle that substantially improves safety, reliability and affordability," Stephenson said.

"The Space Launch Initiative will take us to that point," Stephenson added. "It is a comprehensive, long-range plan to promote commercial development and civil exploration of space and provides the strategy and funding to enable at least two competing architectures for full-scale development of a second generation reusable launch vehicle by mid-decade."

Stennis Space Center began testing aerospike engine components for the X-33 program in 1996 as part of NASA's Reusable Launch Vehicle program. It called for the demonstration of a subscale single-stage-to-orbit vehicle — one that would go from launch stand to orbit without using multiple stages as the Saturn Moon rocket did or dropping rocket motors and fuel tanks like the Space Shuttle.

Testing of the MC-1 engine to power the X-34 also was initiated in 1996 at Stennis. The program's goal was to provide a low-cost technology test bed to demonstrate a streamlined management approach with a rapid development schedule and limited testing.

"The cancellation of these programs is disappointing because the test teams achieved outstanding results in demonstrating the engine operations," NASA's Robert Lightfoot, a manager with the Propulsion Test Directorate at Stennis, said. "The technology advances and the lessons learned from these test programs will be leveraged for all future engine development testing at Stennis."

USM releases 2001 development course calendar at Stennis

The University of Southern Mississippi-Gulf Coast's Division of Continuing Education is offering professional development courses at Stennis Space Center this spring.

Courses will be taught in the Conference Center in Bldg. 1100. The courses are also approved for engineers PDH.

Courses include: Financial Strategies for Successful Retirement, March 20, 27 and April 3 from 9 - 11:30 a.m.; Frontline Supervisory Training in Human Resources Issues, March 22 from 10 a.m. - 3 p.m.; Business Ethics, April 3 from 2 - 3 p.m.; Team Building, April 5 from 8 a.m. - 4 p.m.; Franklin Covey's What Matters Most Seminar, April 10 from 8:30 a.m. - 4 p.m.; Technical Writing for Professionals, April 18 and 19 from 8 a.m. - noon.

To register, call (228) 867-8777. For additional information, call Dayonne McGuire at 228-867-8778.

GADD staff receives field training

Representatives from NASA's Geospace Applications and Development Directorate participated in GPS field training for Trimble's Postprocessed Surveying and Real-Time Kinematic (RTK) surveying. The RTK system is capable of surveying points in just a few seconds to centimeter accuracy. The training also included Trimble's new Geomatics Office software for processing GPS and conventional surveying data. Discussing the readout of the Trimble Data Collector are, from left, Lockheed Martin's Joel Goff, instructor Lou Nash and Jason May, also of Lockheed Martin. Nash is the President of Measutronics in Florida and a certified trainer for Trimble Navigation Limited.

QUICK LOOK

■ **March is Women's History Month –** In commemoration of Women's History Month, Stennis Space Center's *Message of the Day* will provide historical facts about the contributions of courageous women pioneers who have made our nation strong. Other events planned for the month will be announced via e-mail.

■ **The Center of Higher Learning has scheduled open houses** to announce a Master of Business Administration (MBA) degree program at Stennis. These open houses will be held in the Glazier Conference Room, Bldg. 1103. The first open house will be on Monday, March 19 from 10 - 11 a.m., with a presentation at 10:30 a.m. The second open house will be April 11 from 4 - 5 p.m., with a presentation at 4:30 p.m. For additional information, contact Keith Long at Ext. 7662.

■ **The NASA College Scholarship Fund, Inc.** will award seven $8,000 scholarships this year to qualified dependents of NASA and former NASA employees. Applicants must be pursuing undergraduate degrees in science or engineering fields. Please note that the March 30 deadline for having all applications and supporting materials to the corporation scholarship committee must be met. An electronic version of the scholarship information and the application form may be obtained at *http://jscpeople.jsc.nasa.gov/ jsc-hro-2/special_programs/scholarship.htm*.

■ **The Stennis Coed Softball League** will be starting its 2001 season in April. No experience is needed. For more information, call Tony Negron at Ext. 4104 or Bruce Northridge at Ext. 5501.

■ **Stennis will participate in the ninth annual Take Our Daughters to Work Day** on Thursday, April 26. The program is designed to help young women become acquainted with a variety of career options. For additional information, contact Karen Vander at Ext. 3054.

■ **The NASA Crawfish Boil** is tentatively set for Friday, April 20 in the Cypress House Pavilion. Watch for flyers with ticket information.

APPOINTMENTS . . .

(Continued from Page 1)

Federal Engineer of the Year Award from the National Society of Professional Engineers.

Prior to coming to Stennis, Craig held management positions at both JSC and at NASA Headquarters on a variety of space exploration programs.

As staff assistant to the NASA Administrator, he was the principal architect of both the NASA Strategic Plan and the strategy for the human exploration and development of space.

DEMO . . .

(Continued from Page 5)

ed technology to work together with Mississippi industry to bring about change," Dr. Pam Lawhead, assistant professor of UM's Computer and Information Science program, said.

"This CD-ROM is an excellent example of university-based research resulting in a useful, commercial product," Dr. Allan Falconer, Executive Director of MSCI, said. "It will help the Port of Gulfport conduct their business in new and more efficient ways. The combination of remote sensing images and economic impact data really makes this CD-ROM a unique tool."

The goal of the MSCI program is to promote and develop the remote sensing industry in Mississippi.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration. Mark Craig is the acting director, Myron Webb is the public affairs officer, and Lanee Cooksey is the news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 208D, Stennis Space Center, MS 39529, or call (228) 688-3585.

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